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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/825,630

04/16/2004

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017346-0181

7864

22428 7590 09/30/2008
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EXAMINER

MANOHARAN, MUTHUSWAMY GANAPATHY

ART UNIT

PAPER NUMBER

2617

MAIL DATE

DELIVERY MODE

09/30/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/825,630	Applicant(s) BACCELLI ET AL.	
	Examiner MUTHUSWAMY G. MANOHARAN	Art Unit 2617	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 April 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

Applicant's arguments with respect to claims 1-21 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites the limitation "said base station" in paragraph 5 as "for each mobile served by said base station". There is insufficient antecedent basis for this limitation in the claim.

Claims 2-10 are also rejected, since they are based on rejected base claim 1.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-7, 11-17 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable by Rune et al. (US 2004/0209624) in view of Laakso et al. (hereinafter Laakso) (US 2003/0171123).

Regarding **claim 1**, Rune teaches a control device for a wireless communications network, said network comprising a plurality of base stations communicating with a plurality of mobiles, said control device comprising a calculator of quantities belonging to a group of quantities comprising, quantities related to attenuations measured between mobiles and base stations (Paragraph [0026]), and quantities related to a signal to interference and noise ratio threshold (“target CTIR”, Paragraph [0029]), said control device further comprising (Figure 1, abstract; Paragraph [0023]):

a decision device operating jointly with the calculator according to a predefined mechanism, for deciding whether or not a new candidate mobile can be processed in said network (“**if the threshold is exceeded, new connections may not be processed**”, Paragraph [0045]; “**admission control**”, title)

characterized in that the said predefined mechanism comprises, for each base station to be controlled by said control device (Figure 1; **RNC1 controls the base stations BS1 and BS2**; Paragraph [0020]);

for each mobile device served by the said base station and for each new candidate mobile to aid base station (“**contributions of those mobiles to the total uplink interference**”, Paragraph [0008]; **Note: those mobiles include the candidate mobiles also**), a load calculation function capable of calculating the load induced by said mobile to said base station,

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an evaluation of a load condition, associated to said base station, as a function of the loads calculated for the mobiles served by said base station and candidates to said base station, said load condition representing the feasibility of the power allocation to said mobiles by the said base station (Paragraphs [0008-0009]; **Note: Rune's load estimation includes interference from other cell also and therefore includes candidate mobiles**).

Rune did not teach specifically for each mobile device served by the said base station and for each new candidate mobile to said base station, a load calculation function capable of calculating the load induced by said mobile to said base station, a sole function of the quantities output by said calculator.

However, Laakso teaches in an analogous art for each mobile device served by the said base station and for each new candidate mobile to aid base station, a load calculation function capable of calculating the load induced by said mobile to said base station, a sole function of the quantities output by said calculator (Paragraph [0042], **equation 6, reads on load for each mobile served by the base station**; Paragraph [0031], **actual total uplink load includes the load caused by candidate mobile to base station includes the load caused by the own cell users and the candidate to the base station**),

an evaluation of a load condition, associated to said base station, as a function of the loads calculated for the mobiles served by said base station and candidates to said base station, said load condition representing the feasibility of the power allocation to said mobiles by the said base station (Paragraphs [0034-0035]; **"when adjacent cell interference tends to cause problem ... the radio resource management tries to ... by increasing powers"**).

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Therefore, it would be obvious to one of ordinary skill in the art at the time of invention to have each mobile device served by the said base station and for each new candidate mobile to said base station, a load calculation function capable of calculating the load induced by said mobile to said base station, a sole function of the quantities output by said calculator in order to avoid extensive control signaling in the network and reduce time delays.

Note: Laaksao teaches the Load can be calculated by the controller RNC or by the base station (Paragraph [0039]), **“load may be measured at the base station and signaled to RNC”**, Paragraph [0052]; **“Resource management function may also be implemented in base station or within a mobile switching center....distributed over several elements”**, Paragraph [0025]). Therefore, it is within the scope of ordinary skill in the art to have distributed or centralized controller.

Regarding **claim 2**, Rune/Laakso teaches the device according to Claim 1, characterized in that load condition is obtained by summing the loads calculated for the mobiles served by a station and candidates to said base station (Rune: Paragraph [0034]; **Note: Rune’s load estimation includes load contributions of all mobiles for which it is the serving RNC to all cells controlled by another RNC (Abstract) and therefore includes candidate mobiles; Laakso:Paragraphs [0031 and 0042]**).

Regarding **claim 3**, Rune teaches the device according to Claim 1, characterized in that the load calculation function comprises, for a mobile, the summing of the inverses of the attenuations of the adjacent stations, the result being multiplied by an expression related to the threshold of the signal to interference and noise ratio, and, by the attenuation at the server station (Paragraph [0038]).

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Regarding **claim 4**, Rune teaches the device according to Claim 1, characterized in that it comprises storage of a current value of the summed load, and in that the said mechanism operates incrementally by calculating the load of a candidate mobile, and updating the summed load, in order to determine whether the mobile is admitted or not, by comparing the summed load with a threshold (Paragraph [0045]).

Regarding **claim 5**, Rune teaches the device according to Claim 1, characterized in that the calculator is provided with a function capable of evaluating a prior uplink budget condition (UBC), compared with a threshold budget value (UBC), and in that the mechanism used by the decision device first of all invokes the said function of evaluation of the prior condition, and rejects the candidate mobile if this condition is not satisfied (Paragraph [0045]).

Regarding **claim 6**, Rune teaches the device according to Claim 5, characterized in that the prior condition comprises, for a mobile, the calculation of its maximum power, divided by an expression related to the threshold of the signal to interference and noise ratio, and by the attenuation at the server station (“perfect power control is assumed so that actual CIR equals the target”, Paragraph [0030]).

Regarding **claim 7**, Rune further teaches the device according to Claim 5, characterized in that the working condition comprises a threshold value, established in correspondence with the said threshold budget value (UBC) (paragraph [0045]).

Claims 11-17 are rejected for the same reason as set forth in claims 1-7.

Regarding **claim 21**, Rune teaches the device according to claim 2, characterized in that said load is given by

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$$\sum_{m_u} \left(\sum_v \frac{1}{L_{m_u,v}} \right) \overline{\xi}_{m_u}' L_{m_u,v}, \text{ where}$$

m_u is a mobile served by the base station

$L_{m_u,v}$ relates to the attenuation between mobile m_u and the base station v

$$\overline{\xi}_{m_u}' = \frac{\overline{\xi}_{m_u}}{1 + \overline{\xi}_{m_u}} \text{ with } \overline{\xi}_{m_u} \text{ the signal to interface and noise ratio threshold for mobile } m_u \text{ and in}$$

that the power allocation to said mobiles by said base station is feasible if said load condition is below a predetermined threshold (Paragraph [0027,0038,0045] and equations 9,2 and the equation in Paragraph [0029]).

Claims 8-10 and 18-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rune (US 2004/0209624) and in view of Laakso et al. (hereinafter Laakso) (US 2003/0171123) and Jain et al. (herinafter Jain) (US 2002/0193118).

Regarding **claim 8**, the combination of Rune and Laakso teaches all the particulars of the claim except device according to Claim 1, characterized in that it comprises a second mechanism capable of cooperating with the calculator in order to evaluate, for a given station, a non-congestion criterion, and a second decision device, capable of modifying the mobile rates in order to remain within the field of the congestion criterion. However, Jain teaches in an analogous art, device according to Claim 1, characterized in that it comprises a second mechanism capable of cooperating with the calculator in order to evaluate, for a given station, a non-congestion criterion, and a second decision device, capable of modifying a mobile bit rate in order to remain within the field of the congestion criterion (Abstract, lines 1-8). Therefore, it

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would be obvious to one of ordinary skill in the art at the time of invention to have the device according to Claim 1, characterized in that it comprises a second mechanism capable of cooperating with the calculator in order to evaluate, for a given station, a non-congestion criterion, and a second decision device, capable of modifying the mobile rates in order to remain within the field of the congestion criterion. This modification increases the efficiency of a wireless system and reduces the probability of overloading or a fault.

Regarding **claim 9**, Rune further teaches, the load calculation function with these values (Paragraph [0035], lines 1-4), and then the calculation of the summed load due to the mobiles served by the station in question, this summed load being compared with a threshold (Paragraph [0038], lines 1-5; Paragraph [0045], lines 4-7).

Regarding **claim 10**, Rune further teaches device according to claim 8, characterized in that the second mechanism comprises, for each mobile, a calculation of its signal to interference and noise ratio threshold, and then the calculation of an expression related to this signal to interference and noise threshold, and next: the invocation of the function capable of evaluating the prior uplink budget condition (UBC), compared with a threshold budget value (UBC), the mobile concerned being rejected if this prior condition is not satisfied, for the mobiles not rejected, the invocation of the load calculation function with the aforementioned values, and then the calculation of the summed load due to the mobiles served by a station in question, this summed load being compared with a threshold related to the threshold budget (Paragraphs [0027-0036]; Paragraph [0045]).

Claims 18-20 are rejected for the same reason as set forth in claims 8-10.

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Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MUTHUSWAMY G. MANOHARAN whose telephone number is (571)272-5515. The examiner can normally be reached on 7:00AM-2:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eng George can be reached on 571-272-7495. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/George Eng/
Supervisory Patent Examiner, Art Unit 2617